DOCUMENT RESUME

ED 083 056 SO 005 997

AUTHOR Friedman, Kopple C.

TITLE How to Develop Time and Chronological Concepts. How

to Do It Series, Number 22.

INSTITUTION National Council for the Social Studies, Washington,

D.C.

PUB DATE 64

NOTE 8p.

AVAILABLE FROM National Council for the Social Studies, 1201

Sixteenth Street, N.W., Washington, D.C. 20036

(\$0.25; Quantity Discounts)

EDRS PRICE MF-\$0.65 HC Not Available from EDRS.

DESCRIPTORS Arithmetic: *Classroom Techniques: Concept Formation;

Concept Teaching; Elementary Education; History Instruction; Learning Activities; Secondary Education; Skill Development; *Social Studies; Teaching Guides; *Teaching Methods: Teaching

Techniques: *Thought Processes: *Time Perspective;

Vocabulary Development

IDENTIFIERS Chronology

ABS? RACT

The purpose of this bulletin, one of a series designed to aid the social studies teacher, is to suggest methods for developing accurate concepts of time and chronology. The importance of these concepts and the instructional problems they present is discussed. A chart offers one basis for a program of grading the skills to be emphasized in time and chronology as part of a comprehensive study of skills in the social studies. Examples of paper and pencil exercises are presented for skills involved with words and phrases descriptive to time, arithmetical associations and dates, dates and their centuries, time lines, consistency in time judgment, personal-social time relationships, family tree, comparison of generations, temporal absurdities, comparative duration of historical periods, and historical periods and their characteristics. A bibliography is included. Related documents are SO 005 979 through SO 006 000. (KSM)





National Council for the Social Studies

A DEFARTMENT OF THE NATIONAL EDUCATION ASSOCIATION
1201 Toth Street, N.W., Washington, D. C. 20036

How To Do It Series-No. 22

PERMISSION T REPRODUCE THE COPYRIGHTED A TERIAL BY MICRO

> FRIC AND ORGANIZATIONS OPERA FUNDER AGREEMENTS WITH THE N INAL INSTITUTE OF EDUCATION FIRER REPRODUCTION OUTSID

KOPPLE C. FRIEDMAN

Consultant in Secondary Curriculum Minneapolis Public Schools

Importance of Time

T ime governs everyday routine. One thinks of the present, the past, and the future. The interests and concerns of people in time vary according to their pursuits the homemaker, the clergyman, the geologist, the anthropologist, the stenographer. Time is unportant to moderns; it was studied and used also by the ancients and primitives.

In school the student is concerned with schedules, days of the week, months of the year, and holidays and vacations. There is a vocabulary of time to be learned, including simple concepts such as "today" and "Monday" and more difficult ones such as "generation" and "biennial." There is the understanding to be acquired of our system of keeping track of time. In arithmetic there are problems dealing with time. In English, the stories often have a particular time setting. Time has its role in music, physical education, science, and typewriting.

Time and Chronology in the Social Studies

Time, like place, has a major role in the social studies. Investigations have shown that many students develop only fuzzy notions about commonly used time concepts; yet, without a well-developed sense of chronology, one can have only a shallow understanding of the social studies. Events, movements, trends, and persons have their place in the stream of time. Here are a few examples of topics involving a concept of time in the main branches of the social studies; geography has seasons and weather, time zones, rotation and revolution of the Earth; history includes sequence of steps in man's progress, important dates, the social setting in different ages; economics deals with the change from barter to the use

of money, business cycles, depreciation; sociology involves steps in various phases of social progress, the concept of the changing society, population trends; political science encompasses milestones in the development of government, election dates, the length of term of officials, and so on.

Time in the social studies on the elementary and secondary school levels can be viewed in a variety of respects, each of which has implications for instruction. Included would be the following; understanding the system of keeping track of time; understanding the vocabulary of time that which describes a definite time, "yesterday," and that which is indefinite, "a long time ago"; developing a perspective of time past, present, and future both with regard to one's own lifetime and toward history; appreciating the factor of change over the years in history -- ometimes abrupt, sometimes gradnal, but nevertneless continual; observing threads of sequence, continuity, and development; using timedistance relationships in the use of the time line, the use of the clock, the timing of travel; observing durations in the time during which trends and movements last; visualizing historical settings in various past ages; associating events with either specific points of time, approx mate, or general; and relating time with arithmetic as in number concepts and dates.

Frequency of Time Concepts

Wesley and Wronski state, "While the vocabulary of time concepts is not especially large it is in constant use." They list the following time concepts¹ within the first 2,000 words of Thorndike and Lorge:

Wesley, I da u B., and Wronski, Stanley P. Teaching Social Studies in High Schools, Boston D. C. Heath and Company, 1964, p. 437.



TIME CONCEPTS

1-500	long	when	till	June
after .	moment	while	tomorrow	March
again	month	year	winter	May
age	morning	yet		midnight
ago	never		1001-2000	noon
already	new	501-1000	ancient	November
always	next	afternoon	April	o'clock
before	night	century	August	October
day	now	date	current	presently
during	old	future	dawn	recent
early	once	minute	Decemb er	recently
evening	present	modern	February	Saturday
ever	second	past	forever	seldom
fall	since	quick ly	immediate	September
first	soon	season	immediately	Sunday
hour	then	sometimes	instant	tonight
last	today	spring	January	whenever
late	until	sudden	July	yesterday

The Instructional Problem

Young children display a meager sense of time, although research indicates that they have an understanding of simple everyday concepts by the time they reach the third grade. So far as their chronological perspective is concerned, that remains weak until they arrive at the secondary school, and even for many students at that level it would not be considered strong. Maturity, if whatever adult measurements exist can be used as criteria, is reached from age thirteen to sixteen.

Yet the appreciation of time and chronology in their many respects, as already indicated, is vital for a proper understanding of the social studies. Maturation is an important factor in the development of this appreciation, but there is evidence that systematic teaching of time and chronology can produce better results than haphazard learning. Instruction should start in the kindergarten and continue in every grade beyond that.

Granted that maturation plays a role in the appreciations and skills that children develop, it is reasonable to assume that guidance by the teacher should also play a major role. We do not wait for children to read; we teach them. We do not have to wait for an appreciation of good music or art to develop; we teach for it. Similarly, we do not have to wait until children reach the secondary grades before they develop a sense of time and chronology; we must start teaching for it from the early grades.

Just how much of this directed instruction is done by teachers in the secondary school is open to question. It may be assumed, however, that effective means, in contrast to such avenues as the memorization of dates, are not used nearly as much as they ought to be and that the secondary teacher assumes far greater understanding than actually exists. Since the bulk of history courses is found in the secondary school, there is all the more reason for teachers at that level to be vitally concerned with time and chronology.

A Sequence of Skills in Time and Chronology

It might be helpful within a building or school system for teachers to develop a program of grading the skills to be emphasized in time and chronology. There is sufficient literature in the field which, combined with teachers' experiences and judgments, can provide a basis for study. Illustrative of this effort is the chart on page 3 developed in one school system as a part of a comprehensive study of skills in the social studies.²

Kinds of Techniques

There are many different approaches toward teaching about time and chronology. Instruction need by no means be limited just to teaching dates. Many techniques involve simple devices such as are illustrated in this section. most of which can be constructed by teachers as needed. Elaborate or costly materials are not essential. Probably the most essential element is the resourcefulness of the teacher. The techniques involve mainly paper and pencil exercises which can be constructed by the teacher or by students or both. They may be used for diagnostic purposes, as a part of the on-going learning activities, or for achievement testing. In each killechnique, it is imperative that directions be given in advance so that students will know what is expected. Wherever necessary, teachers should illustrate procedures by using examples.

The exercises are not organized by grade level. It is an accepted fact that the range of skills that pupils have varies from classroom to classroom. Also, what will work best for some teachers may not work best for others. It is intended that each teacher will decide which exercises can best be adapted for use in his own classroom.

Elementary Concepts of Time

- 1. How old are you?
- 2. Is this morning or afternoon?
- 3. Is this day or night?
- 4. Is this more like winter or summer?
- 5. What day of the week is today?
- 6. What month is this?
- 7. What day of the month is this?
- 8. What year is this?
- 9. Which is longer a minute or an hour?
- 10. Which is longer—a week or a day?



^{*}Material taken from A Guide for Teaching Social Studies, Grades 6-12 Minneapolis (Minnesota) Public Schools, 1957, p. 16-17.

Skills in Developing a Sense of Time and Chronology

EARLY ELEMENTARY PUPILS
BEGIN TO:

LATER ELEMENTARY PUPILS
BEGIN TO:

SECONDARY PUPILS BEGIN TO:^b

to tell time by the clock

tell time of regular daily activities of the school program tell the hours, half-hours, quarter-hours, and fiveminute intervals tell time to minutes familiarize themselves with time zones, daylight time

figure time allotments for specific jobs

to use the vocabulary of time

use simple definite terms e.g., hour, minute, day, week, month, today, yesterday, tomorrow

use simple indefinite terms, e.g., a long time ago, later, a few years ago use more advanced definite terms, e.g., decade, annual, generation, a.m., p.m.

use more advanced indefinite terms, e.g. presently, shortly, recently use terms of historical implication, e.g., ancient, era, modern, medieval, dynasty

to use the calendar in reckoning time

find the current day or week on the calendar.

find dates on the calendar, e.g., holidays, birthdays

use the names of the months

know the current year associate seasons with the calendar

distinguish between B.C. and A.D.

familiarize themselves with the effect of the rotation of the earth on day and night

familiarize themselves with the effect of the revolution of the earth around the sun on the seasons of the year express centuries as dates express dates in centuries

to acquire a chronological perspective of history

sense the passing of time, e.g., since school started, when I went away

recognize sequence of regular daily activities distinguish between experiences of the past and events of the future

arrange a list of events in sequence according to time

figure the number of years between two given dates interpret a time line construct a time line relate dates and periods of time with more familiar historical happenings

regard certain dates as milestones in history associate the cultures of peoples with different historical periods

perceive sequence, duration, and change in the development of social institutions and movements understand the place of the present era in the history of mankind

"Some of the skills listed will not be introduced until the third grade.

bSkills which were introduced in earlier grades will continue to be developed.



- 11. Which is longer—a month or a year?
- 12. What was the last holiday that passed—the Fourth of July. Easter, or Christmas?
- 13. Name the days of the week, in order.
- 14. Name the months of the year, in order,
- 15. What time is it now? (Pupil looks at the clock or watch.)
- Tell me something that happened a long time ago. (When?)
- 17. Tell me something that happened a short while ago. (When?)

Words Descriptive of Time

Each underlined word below is tollowed by four words or phrases which are preceded by letters. From these four, select the one that is the best answer and most nearly means the same as the underlined word in terms of time. In the blank at the left, place it; letter:

- 1. Future: a. once b. time ahead c. time before d. soon
- 2. Recent: a. kitely b. now c. long ago d. pretty soon
- 3. Carrence a, long ago b, time to come c, not very long ago d, now
- 4. Present: a. all the time b. time ahead c. here d. now
- 5. A.M.: a, noon b, afternoon c, before noon d, night
- 6. P.M.: a, night b, tomorrow c, afternoon d, morning
- 7. Decade: a. one-half year b. 10 years e. 25 years d. 50 years
- 8. Daily: a, every day b, today c, daytime d, week days
- 9. Annual: a. yearly b. always c. this year d. anniversary
- 10. Eternal: a, gone by b, right now c, everlasting d, for 1000 years
- 11. Prehistoric: a ancient b time of large animals c before written records d very old
- 12. Ancient:

 a. before the fall of the Roman
 Empire b, when the Pilgrims
 lived c, time long past d, the
 Elizabethan Age
- 13. Biennial: a, taking place once in two years b, twice a year c, every year d, every fourth year
- 14. Generation: a. period between grandparent and grandehild b. about 33

years c. a person's ancestors d. from the oldest child to the youngest

- 15. Centennial: a, pertaining to 100 years b, eternal c, historic d, as period of 10 years
- Era: a. a century b. a stage of history c. a decode d. the date of an event
- 17. Medieval) a, 500 years b, ancient c, Middle Ages d, primitive
- 18. Dark Ages: a, the days of cavemen b, the age of discovery c, around 500 A.D. d, the time following the American Revolution

Phrases Descriptive of Time

Write a specific date that shows the meaning that each of the following phrases indicates to you in terms of time.

The Nineteenth Century The Victorian Age The Elizabethan Age The Jacksonian period When grandfather was born When great grandfather was born Days of chivalry In medieval times In the days of cavemen Before the time of Christ Pre-war days In colonial days The foresecable future When I shall become an adult In the next decade A century ago

The distribution of responses that pupils give to a test of this type will indicate the vagueness of these expressions in many cases.³

Arithmetical Associations and Dates

The teacher may make use of certain arithmetical associations:

- 60 minutes in an hour (the school bell rings 3 minutes before the hour)
- two 12-hour periods in the day (divided at noon)
- 7 days in the week (Wednesday is the middle of the week)

3For further information, see Wesley and Wronski, op. cit., p. 439-41.

- 30, 31, or 28 days in the month (bills arrive at home around the first day of the month)
- 12 months in the year (a new season begins every third month)
- the arrangement of days in a calendar (week by week, month by month)
- the arrangement of figures on a clock (hour by hour)
- the time to ravel from the United States to England
 - ...by the Pilgrims
 - .. in the Nir etcenth Century
 - .. by ship (.oday)
 - .. by airplare in the 1950's
 - .. by jet (today)
- the time to travel from St. Louis to San Francisco
 - .. by covered wagon
 - ...by Pony Express
 - .. by automobile (today)
 - .. by train (today)
 - ... by airplane (today)
- There are many ways to describe when William conquered England;
 - .. in 1066
 - ... during the Eleventh Century
 - ... 9 centur es ago
 - ... shortly before the Crusades started
 - .. in the Middle Ages
 - ... a long time ago

Each of these time concepts should be evaluated with the class, one at a time, to determine which are the most and which the least meaningful.

Knowledge of dates in itself is not a major objective in the teaching of history. The dates to be learned might well be selected through pupil-teacher planning. They should have significance with regard to the content of history, and not merely because they are used by the author of the textbook. Dates may be picked because they represent turning points in history or mark the beginning or end of a movement or era.

Dates and Their Centuries

Number these dates from 1 to 4 in order, from the earliest date to the latest:

Α.	1702	В.	1042 A.D.
	1889		1042 B.C.
	 981		1648 A.D.
	1041		22 D C

In what century does the year 1091 fall?

The year 1882 refers to 1882 years since: 1, the creation of the Earth 2, the first calendar was devised 3, the birth of Christ 4, the beginning of time.

A.D. refers to the time: 1. since the Egyptian calendar was invented 2, after Darius became ruler of the Persian empire 3, after the birth of Christ 4, of the recent centuries.

B.C. refers to the time before; 1. Columbus 2. Christ 3. Caesar 4. historic times.

Time Lines

Geologists estimate that the age of the earth is at the very least two billion to three billion years old. To show students how very brief is the period of recorded history a calendar or time line can be constructed wherein all geological time is compared with an ordinary calendar year. Based on one calendar year being equal to 3,162,240,000 years of geological time, one minute is equivalent to 6,000 years and each second marks the lapse of 100 years. On this calendar the Cro-Magnon man, first of present species, will not appear on the scene until about 11:57 p.m. on December 31!

Time lines, which can be arranged vertically or horizontally, are one of the best ways of teaching appreciation of the concept of chronology. It is helpful to have students themselves construct time lines illustrating each period of history as they study it. To illustrate the relative brief length of all United States history, for example, the following time line will be helpful:

Beginning of Civilization				Birth of Christ	Discovery America 1492 T	
4000 B.C.	3000 B.C.	2000 B.C.	1000 B.C.		1000 A.D.	1964

Suppose the line below indicates the life span in years for a boy who is ten years old. The line is marked in years as a ruler is marked in inches.

i			i	- 1		1 1	i l
,	١.	 ı	!		1	<u></u>	
Bori	n						Age
							10

Following are some events in the boy's life. On the line place the number of each event at the point which you think indicates when the event happened.

- 1. Fell down the stairs when he was one year old
- 2. Started Kindergarten when he was five
- 3. Had his tonsils out when he was four
- 4. Rode a bicycle when he was nine
- 5. Started fifth grade when he was ten.

Consider the following time line:

		X
1000	1500	2000
A.D.	$\mathbf{A}.\mathbf{D}.$	A.D.



Suppose we wish to locate the point of time along this scale when the Spanish-American War was fought. Its date, 1898, is close to 1900; in terms of the line above this would be spaced at 1/10 of the distance moving from the right end of the scale. You will notice an "x" marked there.

Locate the following events on the same line, marking the location of each event by its number:

- 1. Signing of the Magna Charta
- 2. Eisenhower elected President
- 3. Jamestown founded
- 4. Beginning of the French Revolution
- 5. Columbus discovered America

Sometimes the time line can be presented as a series of drawings placed at proper locations on a time line. These can vary; for example, simple presentations involving events in a child's day or life, the sequence of development of one thenie in history (stages of transportation), or more complex arrangements showing many different events in the stream of history.⁴

Consistency in Time Judgment

A number of events are listed below. By using the letters a, b, c, and d tell whether, in your judgment, each one occurred: (a) long time ago, (b) short time ago; or whether each one will occur: (c) in a long time to come, or (d) in a short time to come.

- 1. The beginning of the Twentieth Century
- 2. The day I started Kindergarten
- 3. The first day of this school year
- 4. When I shall graduate from high school
- 5. When Abraham Lincoln was president
- 6. The presidential election of 1964
- 7. The presidential election of 1960
- 8. Next summer's vacation
- 9. The second World War
- 10. Yesterday
- 11. When I shall be old enough to vote
- 12. Last Christmas

- 13. 1950
- 14. Last summer's vacation
- 15. When I shall be grown up
- 16. When the Pilgrims came to America
- 17. Tomorrow

This exercise attempts to give insight into time perspective in looking backward or ahead. Probably it has most value for upper elementary pupils. Whether the pupil believes that 1950 seems like a long time ago or a short time ago is his privilege. When he assigns events to the future that belong in the past, or vice versa, he is factually incorrect.

Contrasts can be observed in the responses of individual pupils or from the tabulations for groups of pupils for such items as numbers 10 and 17. If pupils indicate that item number 6 is a long time ago, any historical items preceding that ought to be marked as long ago also. Yet caution is indicated if we permit judgments in terms of what may only *secm* to be a long or short time ago.

Personal-Social Time Relationships

Family tree:

Fill in as many of the names of your ancestors and their dates of birth and death as you can on a chart similar to the one on the next page (allow more space).

Information about your arcestors:

Where did they live?

What occupations did they have?

What events in history were occurring when they were young?

How many of them lived in America?

Which ones of them, if any, were immigrants to the United States?

Where did they settle when they arrived here?

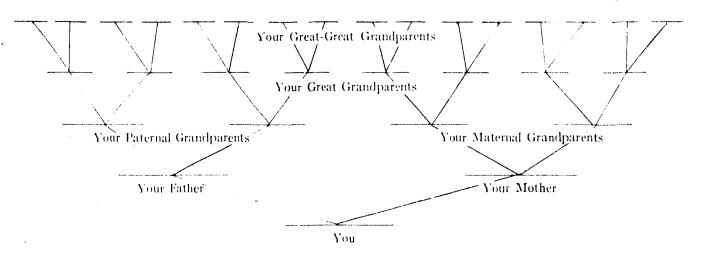
Can you visualize life for one of your ancestors if he had lived in New York in colonial days, in France in feudal times, in ancient Greece?

Which ones of your ancestors on the chart did you know personally?



For more information, see Preston, Ralph C. Teaching Social Studies in the Elementary School. New Yo.k: Holt, Rinehart and Winston (Rinehart), 1958, p. 236-44.

Family Tree



Comparison of Generations:

Year:

	Your Birth Year
Who was President of the U. S.?	
Who was Vice President?	
Name leader of each of three foreign countries	

Name a present-day country that did not exist then
Name a war that occurred in this year (or close to it)
Had the airplane been invented?
Had the United States purchased Alaska?
Had the cotton gin been invented?
Name a composer of music who lived then
Name an author who lived then
What was the population of the United States (approximate)

Had the radio been invented?

Temporal Absurdities

The following story has numbers which *follow* words or phrases. If you consider certain of these words or phrases possible or true for the time setting in which the story took place, circle the "T" for them in the answer list at t'end. For those that you consider improbable or false, circle the "F."

In the year 1500, a certain scholar of Naples wrote a book for university students (1) on life in his times. The book was later printed by machine (2) and many people purchased it. Since this period was the Dark Ages (3), people did not know of such a thing as money (4). They sometimes bought his book by giving him goods in exchange (5).

This book described the fine goods which came from other parts of the world. It told about the silks (6) and spices (7) that Europeans bought from merchants. It discussed the startling events caused when Martin Luther posted his famous ninety-five theses on the church door at Wittenberg (8). The establishment of the first university in North America was praised as an educational achievement (9). A strange new food called the egg was introduced to the Europeans only recently (10). Fighting in wars was mainly by spears and bows and arrows, since gunpowder had not yet been invented (11). Some people were wondering about new ways to go to the Far East since the Turks had captured Constantinople (12). Columbus had discovered America (13). Magellan's expedition resulted in its survivors being the first men to sail around the world (14). In the field of literature. Dante's "Divine Comedy" was contem-

Birth Year

Birth Year



porary (15), as was Shakespeare's "Romeo and Juliet" (16).

١.	n	S	11,	('	r	S	:	
1		•	٠.	ŧ	,			

1. T F	5. T F	9. T F	13. T F
2. T F	6. T F	10. T F	14. T F
3. T F	7. T F	11. T F	15. T F
4. T F	8. T F	12. T F	16. T F

Comparative Duration of Historical Periods

Each pair of items contains two historical periods of varying lengths of time. Check the items in each pair that lasted longer in time than the other.⁵

time since grandfather was born time since Lincoln was born age of feudalism machine age Dark Ages Stone Age

Historical Periods and Their Characteristics

Match the items on the right with the items on the left.

- 1. Ancient times
- 2. Medieval times
- 3. Modern times

Beginnings were made in science

People learned about the existence of germs

Leonardo da Vinci painted "Mona Lisa"

The chief source of labor in Europe was slaves

The first written code of laws was produced

Matches were invented

Architecture of great buildings was characterized by massive stone structure, thick walls, narrow windows, roofs supported by arches

People learned to tell time The printing press was invented

Public education for girls was encouraged

The first great universities were founded

Man reached the South Pole

For other examples, see Morse, Horace T., and McCune, George H. Selected Hems for the Testing of Study Skills and Critical Thinking, Washington, D. C.: National Council for the Social Studies, a department of the National Education Association, 1964, p. 54-56.

Africa was opened up to the Europeans

China was opened up to the

America was discovered

Conclusion

The illustrations in this pamphlet are merely suggestive of the rich variety of devices which can be used by the alert teacher to help his students develop reasonably accurate concepts of time and chronology. Without such understandings students cannot truly understand the other concepts and generalizations which are the objectives of social studies education. Creative teachers will expand these brief suggestions into many activities especially adapted to a particular class and to the topic currently being studied.

Selected Bibliography

Anderson, Howard R., and Lindouist, E. F. Selected Test Items in World History, Revised edition, Washington, D. C.: National Council for the Social Studies, a department of the National Education Association, 1960.

Fraser, Dorothy McClure, and West, Edith. Social Studies in Secondary Schools, New York: Ronald Press, 1961, Chapter 11.

Morse, Horace T., and McClune, George H. Scleeted Items for the Testing of Study Skills and Critical Thinking, Washington, D. C.: National Council for the Social Studies, a department of the National Education Association, 1964.

NATIONAL COUNCIL FOR THE SOCIAL STUDIES. Improving the Teaching of World History. Twenty-Fifth Year-book. Washington. D. C.: the Council, a department of the National Education Association, 1949.

NATIONAL COUNCIL FOR THE SOCIAL STUDIES, Interpreting and Teaching American History, Thirty-First Yearbook, Washington, D. C.: the Council, a department of the National Education Association, 1961, Pp. 353-359.

NATIONAL COUNCIL FOR THE SOCIAL STUDIES. Skill Development in Social Studies. Thirty-Third Yearbook. Washington, D. C.: the Council, a department of the National Education Association, 1963. Chapter 10.

Preston, Ralph C. Teaching Social Studies in the Elementary School, New York: Holt, Rinchart and Winston (Rinchart), 1958.

Wesley, Edgar B. and Wronski, Stanley P. Teaching Social Studies in High Schools, New York: D. C. Heath and Company, 1964.

NOTE: This How To Do It notebook series, designed for a loose leaf binder, provides a practical and useful source of classroom techniques for social studies teachers. Elementary and secondary teachers alike will find them helpful. The titles now available in this series are: How To Use a Motion Picture, How To Use a Textbook, How To Use Local History, How To Use a Bulletin Board, How To Use Daily Newspapers, How To Use Group Discussion. How To Use Recordings, How To Use Oral Reports. How To Locate Useful Government Publications, How To Conduct a Field Trip, How To Utilize Community Resources, How To Handle Controversial Issues, How To Infraduce Maps and Globes, How To Use Multiple Books, How To Plan for Student Teaching, How To Study a Class, How To Use Sociedrama, How To Work with the Academically Talented in the Social Studies, and How To Develop Time and Chronological Concepts.

Dr. Jack Miller, George Peabody College for Teachers, is editor of this series. Dr. Miller welcomes comments about the items now in print and suggestions for new titles



0